# BIOLOGICAL EVALUATION

## Shoreline Stabilization and Historic Properties Management
## Priest River – 10-BR-94
## Carr Creek – 10-BR-111
## Hornby Creek – 10-BR-14

**BONNER COUNTY, IDAHO**

US ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT

September 2006

US Army Corps of Engineers
Seattle District

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## 1.0 INTRODUCTION

The Corps of Engineers is proposing bank stabilization work in three locations along the Pend Oreille River. The locations of the proposed projects are upstream from the Albeni Falls Dam near the town of Sandpoint in northern Idaho (Figure 1). Scattered tracts of federal land located along the Pend Oreille River were licensed to the Idaho Department of Fish and Game for management due to the valuable fish and wildlife habitat they encompass (Figure 2). These areas are often characterized by irregular shorelines and a diverse mix of mudflats, emergent and scrub-shrub wetlands, wet meadow, and upland coniferous and deciduous forest. The licensed lands support a myriad of species including bald eagles, Canada geese, osprey, great blue herons, many waterfowl species, shorebirds, and a variety of other resident and migrant birds. Mammals present on these lands include white-tailed deer, beaver, many species of small mammals, an array of bats, and occasionally moose and black bear. Unfortunately, much of this important habitat is eroding, and will continue to be lost unless effective erosion control is implemented. Soils in this area are subjected to inundation during full pool elevation (2,062+/-) of the reservoir and are subjected to high winds and large waves during that period. During winter draw down (2,051 +/-) the soils have a tendency to slough off or erode as the soil is saturated; with water pressure holding the soil in place at high pool and then when removed the tendency is to erode or slough off onto the shallow areas vacated by the receding shoreline. Vegetation is lacking in the fluctuation zone and establishment is inhibited by undercutting of the banks.

Erosion from wave action has caused incremental bank failure along the north shore of the Pend Oreille River within the boundaries of three archaeological sites. Operation of the Albeni Falls Dam project is having an adverse effect on the Register-eligible sites, as the operation is causing shoreline erosion that results in loss of important archaeological data for understanding the prehistory of the area and the cultural history of several Native American tribes. The mainline tracks of the Burlington Northern Santa Fe Railroad (BNSFRR) and Pend Oreille Valley Railroad (POVRR) run adjacent to the north shore of Pend Oreille River. The erosion and bank failure have progressed within approximately 500 lineal feet of the railroad. This has lead to the potential interruption of a mainline railroad if the erosion is not stopped at its current location. Reaches of the river shoreline to the east of this project site have been stabilized in similar fashion through construction contracts or other agreements dating back to 1964.

This shoreline stabilization project is being implemented at Priest River Wildlife Management Area, as well as two other sites eligible for the National Register of Historic Places; these sites are Carr Creek and Hornby Creek (Figure 2).

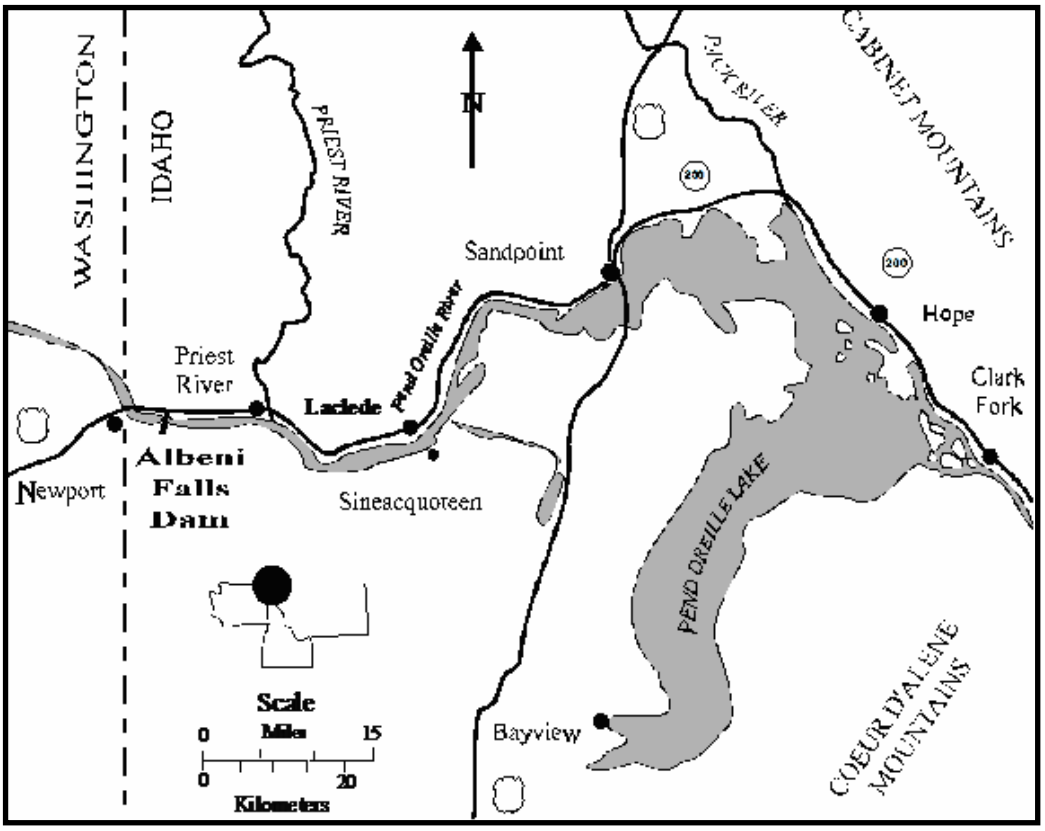

Figure A. Albeni Falls Dam on Pend Oreille River near Sandpoint, Idaho

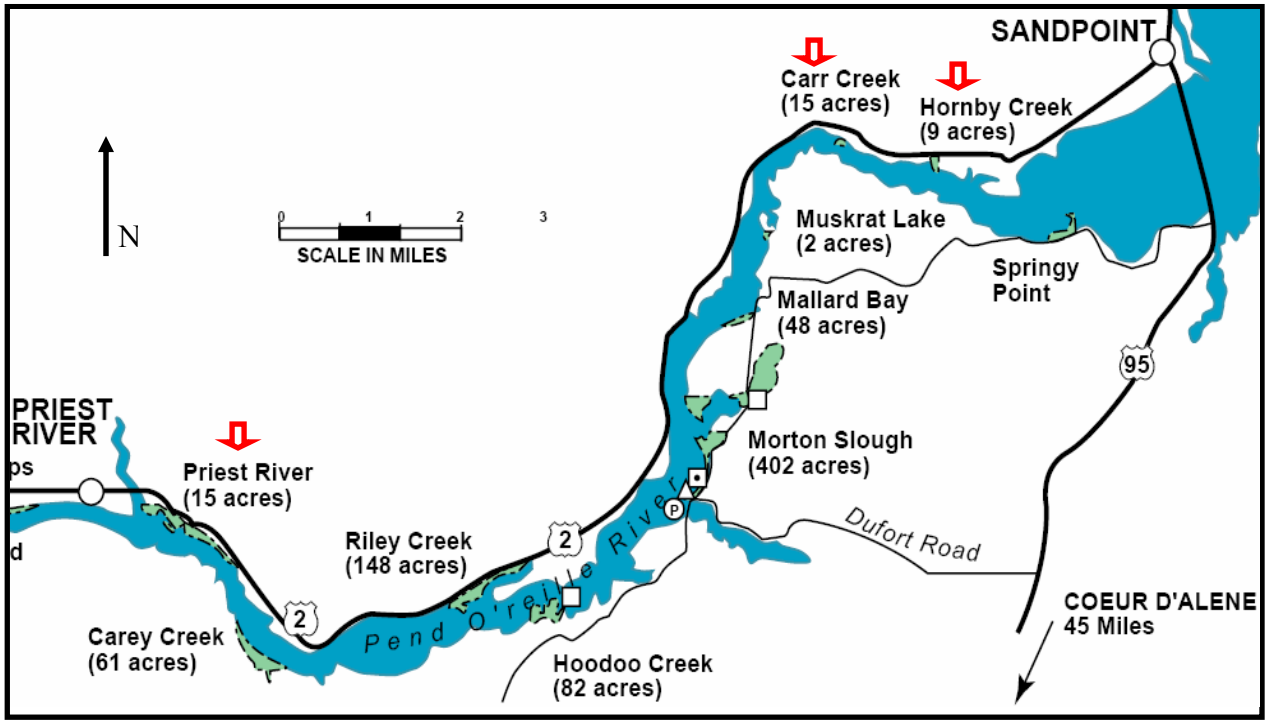

Figure B. Project sites on the north shore of Pend Oreille River

## 2.0 DESCRIPTION OF ACTION AREAS AND PROJECT AREAS

Construction of the federally owned Albeni Falls Dam and Lake Pend Oreille Project (project) began in 1951 and was completed in 1955. The Seattle District, U.S. Army Corps of Engineers operates the project for the multiple authorized purposes of *power generation, navigation, recreation, flood control, and fish and wildlife conservation.* The project provides over 1.1 million acre-feet of storage for the Columbia River system's 15 downstream federal and non-federal hydroelectric projects. Power operations are under the jurisdiction of the Bonneville Power Administration (BPA). The dam is on the Pend Oreille River, in Bonner County, Idaho (Figure 1). The reservoir includes all of Lake Pend Oreille and 25 miles of the Pend Oreille River between the dam and the lake.

The Lake Pend Oreille region enjoys an abundance of wildlife in both population numbers and diversity. At least 23 species of waterfowl inhabit the lake area, mostly as migrants or winter residents. Permanent and summer resident waterfowl nest in marshes and adjacent riparian or upland habitats. Vegetated shoreline habitats are important for rearing and food sources. A variety of raptors, including over-wintering bald eagles, utilize the riparian areas and nearby forests. Other avian species that inhabit the area surrounding the lake and river include wading birds, shore birds, gulls, passerines, and upland game birds. Small mammals reportedly using project lands include coyote, fox, badger, beaver, marmot, river otter, and mink (USACE 1981). The Lake Pend Oreille system supports kokanee, as well as several trout species, largemouth bass, and crappie. Some of the native non-game fish species include bull trout, mountain whitefish, dace, peamouth chub, northern pike minnow, sculpin, and sucker (USACE 2006). The Pend Oreille Wildlife Management area also supports healthy populations of reptiles and amphibians (IDFG 2006).

### 2.1 ACTION AREAS

The action area for Carr Creek and Hornby Creek projects is along the Pend Oreille River near Sandpoint, Idaho. Carr and Hornby Creeks flow into the northeastern reach of the river, just below the lake. There will be no in-water work at these sites, so there will not be any harm to water quality in this area. Disturbance to the wildlife areas will include the construction machinery and dump truck traffic along the highway and unpaved haul roads. Noise from the machinery in the action area may contribute a small amount to ambient noise of the nearby highway, but will not be any louder than the train traffic through the action area. The total duration for construction in this action area will be approximately two weeks.

The action area for the Priest River project site is in the western, downstream reach around the mouth of Priest River. This third site is the only location that will require in-water work. The Corps will follow IDEQ's Best Management Practices for in-water work and follow the requirements of the 401 certification, including hanging a silt curtain in the water to contain sedimentation caused by the project. Turbid water is expected to remain contained within the immediate area of the shoreline where the Class IV riprap will be placed in the top three feet of water.

### 2.2 PROJECT AREAS

The three project areas proposed for FY07 bank stabilization are all on the north shore of the Pend Oreille River, downstream from Lake Pend Oreille. The sites are part of the larger complex of the Pend Oreille River Wildlife Management Area (Figure 2). This is also a historically important and culturally sensitive area for the tribes of northern Idaho and each site is eligible for the National Register of Historic Places.

The project area for Priest River Wildlife Management Area, site 10-BR-94, is located in Township 56N, Range 4W, Section 30. The project site is on the right bank of the Pend Oreille River at River Mile Koehler et al. 96, within the federal fee land in tract C-317-2 (Figure 3). This wildlife management area is one-half mile east of the town of Priest River, Idaho. The project area consists of a riparian shoreline located within the Priest River Wildlife Management Area upstream of the Albeni Falls dam. This area

contains scattered Ponderosa pine (*Pinus ponderosa*) trees with dense undergrowth comprised of black hawthorn (*Crataegus douglasii*), serviceberry (*Amelanchier alnifolia*), and snowberry (*Symphoricarpos albus*). The Pend Oreille River borders the southern side, and the northern portion is bordered by the tracks of the Burlington Northern Santa Fe Railroad (BNSFRR) and Pend Oreille Valley Railroad (POVRR). A palustrine emergent wetland dominated by cattails (*Typha latifola*) borders the east side of the project area, and an isolated sandbar occurs waterward of the shoreline. The site is used by nesting and molting waterfowl, primarily mallards, wigeons, and Canada geese, as well as by migrating and wintering waterfowl (USACE 1981).

The project area for Carr Creek, site 10-BR-111, is located in Township 57N, Range 3W, Section 26. The project site is approximately five miles west of the city of Sandpoint, Idaho, on the north shore of the Pend Oreille River. Interstate Highway 2 and the POVRR and BNSFRR are nearby. Access is by a short dirt road from Highway 2. The flood-plain area of the Carr Creek site is vegetated by hawthorn shrubland and short grasses with a small area of reed canary grass (USACE 1981). The site is a low terrace with seasonally inundated areas that range from mudflats and sandy beach to dense grass fields. Extensive mudflats are exposed at low pool. Other vegetation includes alder and ponderosa pine trees. This site provides waterfowl habitat for feeding migratory birds.

The project area for Hornby Creek, site 10-BR-14, is located in Township 57N, Range 2W, Section 31. This project site is approximately three miles west of the city of Sandpoint, Idaho, on the north shore of the Pend Oreille River. The Hornby Creek site is dominated by wet meadows and has a small grove of alder and hawthorn (USACE 1981). This site also supports waterfowl habitat. As with the Priest River and Carr Creek sites, the Hornby Creek site exhibits lack of stabilizing vegetation in the pool level fluctuation zone of approximately 11 feet.

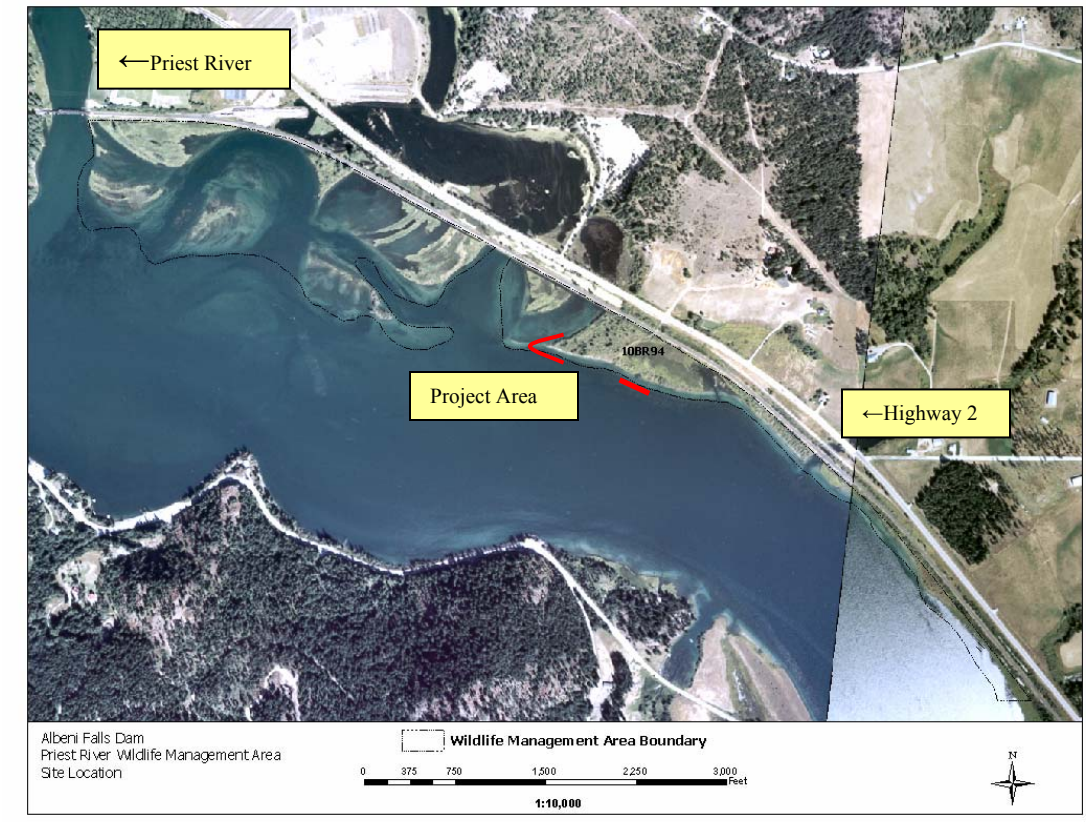


**Figure C.** Priest River Wildlife Management Area work sections.

## 3.0 DESCRIPTION OF PROJECT

The proposed projects will stabilize the shoreline to preserve important wildlife habitat, protect National Register-eligible archaeological sites, and prevent further encroachment into the BNSFRR easement within the Priest River Wildlife Management Area. Appendix A provides aerial photos with construction site layout. The proposed time frame for construction is winter 2006-07. Construction would begin in December and take approximately 26 work-days to complete all three sites. Wintertime construction would provide two beneficial conditions. First, the ground would be frozen so heavy machinery would not sink into mud; second, the reservoir level would be drawn down and held at 2055, which means that the rock riprap could be placed on the shoreline in the dry and prevent in-water work for most of the shoreline to be stabilized. Some riprap will be placed below the 2055 waterline down to 2052 at a small section of the Priest River project site.

The project plans (see Appendix B) specify the amount of material and machinery used and provide cross sections of the stabilization structure. A general description of the construction procedures for all three sites is as follows: Filter fabric will be placed following the contours of the shoreline to provide support and prevent fine sediment from entering the river. This process will be similar to the method used to stabilize the eroding shoreline at Riley Creek Campground in 2000. Filter fabric will be covered with a pit-run crushed rock material to establish a 2:1 slope. Once the slope is established, Class IV riprap or smaller diameter spall rock will be placed approximately three feet deep. Upon completion, all materials used for haul road construction will be removed. Any incidental native vegetation cleared for construction will be replanted with the same or similar plant species. Construction material will consist of biodegradable filter fabric, Class IV riprap, spalls, 3-inch minus crushed stone, and granular fill. All rock material will be obtained from a state-permitted source. Machinery used for construction includes a D-4 Dozer with 6-way blade and 3-prong ripper or equivalent, 200 Series excavator with thumb or equivalent, and dump trucks. The reservoir will be drawn down in the fall and held at 2055 through the winter season. Placement of fill for bank protection at the west end of the Priest River site will require a small amount of in-water work for the western 100-foot section, because rock riprap will need to be placed below the waterline down to 2052 to ensure the integrity of the bank stabilization at this site. Hay bales will be used along the access road to prevent stormwater runoff from affecting the surround landscape and vegetation at all three sites.

Habitat features incorporated into the design include willow plantings and riparian plantings. Willow plantings will be placed at the summer high pool elevation. Willow cuttings will be placed horizontally on 6-inches of dirt with approximately 25% of the cutting exposed. The horizontal placement will facilitate horizontal growth from the slope, thus a greater area of water covered by vegetation. Following willow placement, 6 additional inches of dirt will cover 75 percent of the horizontal plantings to maintain soil-willow contact. Smaller diameter rock will aid in soil retention by reducing interstitial spaces created by larger diameter riprap. Vegetation will not be planted within the fluctuation zone due to the low survivability of the dam-controlled hydrologic regime. At the top of bank, native conifer and deciduous trees will be planted. Planting will occur within a 15-foot wide zone with black cottonwood (*Populus balsamifera*) and Ponderosa pine (*Pinus ponderosa*) placed randomly in a rough linear formation. The bareroot plant material will benefit from spring precipitation as irrigation is not feasible on this site. Planting methods will utilize a hand-pick to minimize disturbance if culturally sensitive materials are encountered. Installation will also be overseen by an archaeologist and a biologist experienced in native plant installation techniques.

In order to keep quantity of rock at a bare minimum, Large Woody Debris (LWD) has been omitted from this project. LWD would require more rock to stabilize the structure, thus resulting in further rock encroachment into the shoreline. In addition, toeing the wood into the bank would require excavation that is prohibited given the culturally sensitive nature of this project.

### 3.1 PRIEST RIVER 10-BR-94

Erosion and bank failure have progressed outside the flowage easement area and encroached approximately 50 feet into the Pend Oreille River riparian zone. The proposed project is to stabilize approximately 640 lineal feet of shallow slope shoreline immediately adjacent and east of this site, and another 100 lineal feet of steeper slope and higher bank shoreline on the western end. The duration of construction is estimated at approximately 12 days assuming typical weather conditions.

Of the three project areas, the Priest River site is the only one that will require in-water work. A 200-series excavator will place Class IV riprap in the first 1-3 feet of shoreline below the low-pool waterline at 2055. The Corps will follow IDEQ's Best Management Practices for in-water work and abide by the 401 certification. The Corps will deploy a silt curtain in the water to contain turbidity caused by the project. Anticipated impacts of placing fill material below the waterline include a small amount of temporary, localized turbidity. The result of the riprap will be an overall decrease in sediment input from the project sites as the bank will be stabilized.

A temporary haul road follows the alignment of the existing access trail leading from Highway 2 to the eastern terminus of the project area. The distance of the road is approximately 500 lineal feet with a 14-foot width. Two turnouts of 10-feet wide by 30-feet long were also constructed. A temporary easement was obtained from Pend Oreille Valley Railroad for access across the railroad grade. Access will involve placement of a temporary construction platform over the tracks. The platform will sit approximately one foot higher than the existing railroad grade. Wetland boundaries will be delineated and construction fencing installed to prevent any road encroachment in the wetland area. Staging will occur at the terminus of the access road near the top of bank where an existing clearing in vegetation occurs. In order to reduce clearing of riparian vegetation, rock placement will be accomplished from the shoreline instead of from the top of the bank. A temporary haul road will be accessed from the staging area and be aligned near the toe of slope within the exposed shoreline. Construction will avoid excavation into the bank to avoid prevent disturbance of embedded culturally sensitive material. The Corps (Emergency Management Office) will monitor construction.

### 3.2 CARR CREEK 10-BR-111

The objective for this project is to place 300 lineal feet of riprap on a low bank with shallow slope to protect an area of habitat in the historical site that is vulnerable to wave and wake erosion during high water. Access to the site can be achieved most of the way via an existing private road. A total of 200 lineal feet of access road will need to be constructed including a railroad crossing. A natural clearing will be temporarily graveled to be used as a staging and truck turn-around area. All work will be achieved from the bank above the high water mark. A total of 1500 cubic yards of riprap will be placed along the shoreline. No excavation is allowed at this culturally sensitive site, and there will be no in-water work. The duration of work for this project is expected to be five days. All materials for the access road will be removed and the site will be restored by replanting disturbed areas. After project completion, no further access to this site will be required for maintenance due to the low slope of the bank creating low risk of shifting of the riprap. The riprap will not be in danger of failure through slumping.

### 3.3 HORNBY CREEK 10-BR-14

This proposed project will involve placing 1,000 lineal feet of riprap on low banks to protect three areas of habitat in this historic site that are vulnerable to wave and wake erosion during high water. Access using an existing graveled haul road in an undeveloped area will need to be negotiated with an adjacent landowner to avoid the need for barging materials to the shoreline. Approximately 125 lineal feet of beach access road will need to be constructed, and later removed when construction is complete. All work will be achieved from the bank above the high water mark, so there will not be any in-water work for this project. This site will require a total of 4000 cubic yards of riprap to accomplish the shoreline

stabilization. The duration of construction is estimated at approximately nine days assuming typical weather conditions. All materials for the access road will be removed and the site will be restored by replanting disturbed areas. As with the Carr Creek project, no further access to this site will be required for maintenance.

### 3.4 CONSERVATION MEASURES

The following conservation measures will be implemented to ensure impacts will be at a minimum before, during, and after completion of the proposed project:

1. A design plan will be implemented that will contain directions for the inclusion of habitat enhancement features. These features will include planting of shrubs at the high pool elevation for shallow water cover and detrital import, and planting of trees near the top of bank for perching;

2. Monitoring of the project during construction to ensure no harassment of bald eagles will occur for wintering eagles. Monitoring will be the responsibility of the Corps;

3. Best management practices will be enforced to ensure no unnecessary damage to the environment will occur, monitoring for oil spills etc. and their clean up;

4. Any work that occurs near the water's edge will only occur during the winter pool elevation ensuring work will take place in the dry for Carr and Hornby Creeks;

5. There will be no disturbance to any wetlands.

## 4.0 AUTHORITY

The Albeni Falls Dam project was authorized by Congress under the Flood Control Act in 1950 in accordance with Senate Document 9, 81st Congress, First Session, as part of a comprehensive plan for the development of the Columbia River System. Each year, to ensure the project is maintained, funds are allocated via Congress for Operation and Maintenance of the Albeni Falls Dam Project.

The authority for this proposed project is Section 9 of the Flood Control Act of 1946, 33 USC 701(q):

> "*When the Chief of Engineers shall find that any highway, railway, or utility has been or is being damaged or destroyed by reason of the operation of any dam or reservoir project under the control of the Department of the Army, he may utilize any funds available for the construction, maintenance or operation of the project involved for the repair, relocation, restoration or protection of such highway, railway or utility.*"

## 5.0 THREATENED AND ENDANGERED SPECIES

In accordance with Section 7(a)(2) of the Endangered Species Act of 1973 (ESA), as amended, the Corps is required to assure that its actions have taken into consideration impacts to federally listed threatened or endangered species for all federally funded, permitted, or licensed projects. Five species listed as either threatened or endangered are potentially found in the project area:

- Bald eagle *(Haliaeetus leucocephalus)*
- Bull trout *(Salvelinus confluentus)*
- Gray wolf *(Canis lupus)*
- Ute ladies' tresses *(Spiranthes diluvialis)*
- Lynx (*Lynx canadensis*)

## 6.0 DETERMINATION SUMMARY

Table 1 summarizes the status and effect determinations made for each of the species potentially occurring in the project vicinity. Specific species uses of the action area and effects determinations were confirmed with Idaho Fish and Game (Terra-Burns 2005).

**Table 1. Effect Determination Summary**

| Species | Listing Status | Effect Determination |
|---|---|---|
| Bald eagle | Listed Threatened | Not likely to adversely affect |
| Bull trout | Listed Threatened | Not likely to adversely affect |
| Gray wolf | Listed Threatened | No effect |
| Ute ladies' tresses | Listed Threatened | No effect |
| Lynx | Listed Threatened | No effect |

### 6.1 BALD EAGLE

Bald eagles (*Haliaeetus leucocephalus*) usually build nests in large trees near rivers, lakes, marshes, or other associated wetland areas and are usually re-used year after year. These nests are very large, measuring up to six feet across and weighing hundreds of pounds. Bald eagles normally lay two to three eggs once a year and the eggs hatch after about 35 days. The characteristic features of bald eagle breeding habitat are nest sites, perch trees, and available prey. Bald eagles primarily nest in uneven-aged, multi-storied stands with old-growth components. Factors such as tree height, diameter, tree species, position on the surrounding topography, distance from water, and distance from disturbance also influence nest selection. Snags, trees with exposed lateral branches, or trees with dead tops are often present in nesting territories and are critical to eagle perching, movement to and from the nest, and as points of defense of their territory.

Fish are the primary food source, but bald eagles will also take a variety of birds, mammals, and turtles (both live and as carrion) when fish are not readily available. Ducks are another primary food source of bald eagles, especially in winter, since ducks are abundant and readily available. Other wintering habitat considerations are communal night roosts and perches. Generally the largest, tallest, and more decadent stands of trees on slopes with northerly exposures are used for roosting; eagles tend to roost in older trees with broken crowns and open branching. Bald eagles select perches on the basis of exposure, and proximity to food sources. Trees are preferred over other types of perches, which may include pilings, fence posts, power line poles, the ground, rock outcrops, and logs (Steenhof 1978). The bald eagle was proposed for de-listing in July 1999.

***Known Occurrences in the Project Vicinity***

Bald eagles are known to winter and forage in the action area (IDFG 2004, Brengle 2005 pers. comm., Terra-Burns 2005 pers. comm.). According to the Idaho Conservation Data Center GIS coverage maps of federally listed species, the action area includes bald eagle wintering and forage habitat (IDFG 2004). In particular, bald eagles are known to feed and roost on the sandbar located waterward of the shoreline. Bald eagle nests are not documented to occur within a one-mile radius of the action area for each of the three project work sites. The closest nest is approximately two miles away from the Priest River Wildlife Management area site (IDFG 2004). The three project sites of the action area lack tall deciduous trees that are typically used by bald eagles for nesting and perching.

***Effects of the Action***

No communal night roosts or perch trees will be affected, as no removal of riparian vegetation will occur since construction disturbance is along the unvegetated shoreline.

Foraging bald eagles may be displaced by the noise of heavy equipment, but the availability of prey will not be significantly disrupted by project construction. Eagles tend to be less sensitive to disturbances at feeding sites than in roosting areas (Steenhof 1978).

***Determination of Effect***
The Corps believes this project is **not likely to adversely affect** the bald eagle. This determination is based on the lack of nests and communal night roosts in the immediate vicinity of the proposed project. While heavy equipment activities have the potential to disrupt feeding opportunities in a localized area, this project will not alter the long-term food base.

## 6.2 BULL TROUT

Adult bull trout are olive-green to brown with faint pink spots. Bull trout exhibit resident and migratory life-history strategies through much of the current range (Rieman and McIntyre 1993). Resident bull trout complete their entire life cycle in the tributary or nearby streams in which they spawn and rear. Migratory bull trout spawn in tributary streams where juvenile fish rear from one to four years before migrating to either a lake (adfluvial), river (fluvial), or in certain coastal areas, to saltwater (anadromous), where maturity is reached in one of the three habitats (Fraley and Shepard 1989; Goetz 1994).

Water temperature above 15°C is believed to limit bull trout distribution, which may partially explain the patchy distribution within a watershed (Fraley and Shepard 1989; Rieman and McIntyre 1995). Preferred spawning habitat consists of low gradient streams with loose, clean gravel (Fraley and Shepard 1989) and low water temperatures of 5° to 9°C in late summer to early fall (Goetz 1994).

Historically, the Lake Pend Oreille system may have supported an estimated 10,000 or more adult bull trout (Pratt and Houston 1993). Although this estimation is lacking data, such as spawning ground surveys, and precludes making a reliable estimate of the actual number of fish, it can safely be assumed that Lake Pend Oreille sustained a large population of adult bull trout. The population status changed dramatically with the U.S. Army Corps of Engineers construction of the Albeni Falls Dam in 1955. In its Biological Opinion following the listing of bull trout as a threatened species, the US Fish and Wildlife Service (2000, as cited in USACE 2005) noted:

> *"Bull trout were abundant in the Pend Oreille River through 1957, and then abruptly their numbers decreased to the point that individual fish are now noteworthy. This abrupt decline correlates with the commencement of operation of Albeni Falls Dam in 1952. No other abrupt or widespread threat can be identified for this portion of the Pend Oreille River basin during the 1950's."*

***Known Occurrences in the Project Vicinity***
Bull trout occurrence is strongly associated with larger stream size, lower channel gradient, and greater habitat complexity (frequency of large woody debris); each of these local-scale habitat features were identified as important predictor variables for the occurrence of bull trout and other salmonids (Rich Jr. et al. 2003). The lack of large woody debris in the project areas both before and after project completion would seem to indicate a low likelihood of bull trout presence in these specific shoreline reaches. Bull trout spawning and rearing habitat below Lake Pend Oreille is extremely limited due to high summer temperatures that are above the thermal tolerance for bull trout. However, bull trout from the Priest River do use it as a migration corridor in the fall and spring to migrate to and from Lake Pend Oreille (USACE 2005, Terra-Burns 2005). Construction will occur in winter 2006-07; therefore, there is a low probability that bull trout would be utilizing the areas that surround the three project work sites, as this is neither their migration period, nor preferred habitat.

Construction will not begin until winter pool elevations are established. Winter pool elevation will be maintained at 2055 in 2006-07. Delaying construction to winter draw down elevation will avoid potential interference with spring or fall migration periods. The construction zone at each of the three work sites will not be physically accessible to bull trout. While critical habitat has been designated in Priest River and nearby in Pack River, the three project sites on Pend Oreille River are not within the designated critical habitat (USFWS 2005).

***Effects of the Action***
Potential effects of this project on bull trout will be mitigated by timing restrictions. The work will occur during the winter months when bull trout are not migrating. The water level will be low, and the areas surrounding the project area high, dry and presumably frozen.

***Determination of Effect***
The Corps has determined that the proposed project is **not likely to adversely affect** bull trout. This determination is based upon the elimination of direct impacts that will result from scheduling work during the winter low water levels. There would be no effects to spawning habitat or behaviors. Potential effects of any disruptions to feeding would be discountable.

## 6.3 GRAY WOLF

Gray wolves occurring in Idaho north of Interstate 90 are listed as endangered, and receive full protection in accordance with provisions of the Endangered Species Act. Gray wolves occurring in Idaho south of Interstate 90 are listed as a nonessential experimental population, with special regulations published in the Federal Register, Vol. 59, No. 224 November 22, 1994. The project areas are located north of Interstate 90 and are therefore subject to consultation under the ESA.

The gray wolf is the largest member of the dog family (*Canidae)*. Adult males average 32-45 kg and females weigh in at around 25-39 kg. Gray wolves measure 1.5-1.8 meters (m) from nose to tail, and stand 66-81 cm at the shoulder. The pelt may be any color from black to white, or a mix. They have long legs and the chest is deep and narrow. These aspects of the wolf's anatomy are especially well suited for fast, far ranging travels, such as frequent hunting expeditions. Wolves' senses of smell and hearing are very keen, and they are reported to be able to hear other wolves howling at up to 9.7 km away. There are as many as 24 sub-species in North America (Bangs and Fritts 1993).

The gray wolf reaches sexual maturity in approximately 2 years. About six pups are born in April in a den dug by the female. The pack, averaging between 4 and 12 wolves, shares in the responsibility of raising the pups. Gray wolves are carnivorous, feeding on most game animals from large ungulates such as elk to small rodents like deer mice. Their diet is very seasonal and is based on food availability. Gray wolves will travel as far as 50 km per day in search of food (Zimen 1981).

***Known Occurrences in the Project vicinity***
Although the habitat north of the project and State Highway 2 is ideal gray wolf habitat, it is believed that no packs live within the immediate project area. Highway 2 separates the forested mountainous habitat from the riparian zone of Pend Oreille River making wolf presence even less likely at the work sites.

***Effects of the Action***
If wolves or a single wolf were to enter the proposed project area during construction, there would be potential for disruption of their feeding behavior because the project will have a tendency to frighten ungulates and other prey away from the immediate vicinity. However, there would be no long-term effects due to this temporary feeding behavior interference. The resulting bank protection would not affect the availability of prey items.

***Determination of Effect***
The Corps believes this project will have **no effect** on gray wolves. This determination is based on the fact there are no known packs that live within the immediate vicinity of the proposed projects.

## 6.4 UTE LADIES' TRESSES

*Spiranthes diluvialis* is a perennial, terrestrial orchid with stems 20 to 50 cm tall, arising from tuberously thickened roots. Its narrow leaves are about 28 cm long at the base of the stem, and become reduced in size going up the stem. The flowers consist of 7 to 32 small (7.5 to 15 mm) white or ivory flowers clustered into a spike arrangement at the top of the stem (Sheviak 1984). The species is characterized by whitish, stout, ringent (gaping at the mouth) flowers. The sepals and petals, except for the lip, are rather straight, although the lateral sepals are variably oriented, with these often spreading abruptly from the base of the flower. Sepals are sometimes free to the base.

Ute ladies' tresses generally bloom from late July through September, depending on location and climatic conditions. In some areas, this species may bloom in early July or as late as early October. Bumblebees are apparently required for pollination of this species. Ute ladies' tresses are usually found in mesic or wet meadows along permanent streams or wetlands (Sipes and Tepedino 1995).

***Known Occurrences in Project Vicinity***
Ute ladies' tresses is not known to occur in Bonner County, Idaho (Fertig et al. 2005); the project location does not provide suitable habitat for this species. Although the plant can be subjected to intermittent and unpredictable inundation as with the project area's edge, specific substrate and hydrology requirements are not present. Ute ladies' tresses requires stable subsurface moisture (Fertig et al. 2005). The soil is fine mineral material (non-organic) and hydrology fluctuates widely due to the reservoir pool elevations.

***Effects of Action***
There is no potential for habitat to be restored that could possibly support Ute ladies' tresses at the landward side of the proposed project.

***Determination of effect***
The Corps has determined that the proposed project will have **no effect** on Ute ladies' tresses. This determination is based on the fact there is none located within the project vicinity and there is no habitat suitable at the proposed project site.

## 6.5 LYNX

Lynx (*Lynx canadensis*) are a medium-sized cat with long legs, large, well-furred paws, long tufts on the ears, and a short, black-tipped tail (McChord and Cardoza 1982). Adult males average 10 kg in weight and 85 cm from head to tail, and females average 8.5 kg and 82 cm from head to tail (Quinn and Parker 1987). The well-tufted paws and long legs give the lynx an advantage for hunting in deep snow.

Lynx are specialized predators that are highly dependent on the snowshoe hare for food. Lynx usually concentrate their foraging activities in areas where hare activity is high (Koehler et al. 1979). Lynx also prey opportunistically on other small mammals and birds, particularly when hare populations decline (Nellis et al. 1972, Brand et al. 1976, McChord and Cardoza 1982).

Lynx inhabit a mosaic between boreal forest and subalpine coniferous forest or northern hardwoods (Barbour et al. 1980). They use late successional forest with large woody debris, such as downed logs and windfalls, to provide denning sites with security and thermal cover for kittens (McChord and Cardoza 1982, Koehler and Brittel 1990).

In the contiguous United States, the lynx historically occurred in the Cascade Range of Washington and Oregon; the Rocky Mountains from Montana, Idaho, and Oregon south to Utah and Colorado; the western Great Lakes region; and the northeastern United States region from Maine, south to New York and Pennsylvania, and east to Massachusetts (McChord and Cardoza 1982, Quinn and Parker 1987). According to the proposed rule to list the Canada lynx (USFWS 1998) and to Rust (1946), lynx were distributed throughout northern Idaho in the early 1940's, occurring in 8 of the 10 northern and north-central counties. Prior to 1977, lynx were considered a predator, subject to unrestricted harvest with open season and no bag limit. Harvest records were unreliable prior to the 1980's because no distinction was made between bobcats and lynx. In 1982, Idaho Department of Fish and Game initiated a mandatory pelt-tagging program and the number of reported lynx harvested dropped to none. In 1990, Hash reported stable or declining small lynx populations in Idaho. Although still classified as a furbearer, lynx was dropped from the hunting and trapping seasons in 1997/1998. The U.S. Fish and Wildlife Service concluded that a self-sustaining resident population does not exist in Idaho, but individual animals are present. This could be from the movement of lynx across the Canadian border. No current population estimates are available.

***Known Occurrences in Project Vicinity***
There are no known lynx populations in the vicinity of the proposed project area.

***Effects of Action***
With no known lynx associated with the proposed project area or the action area the proposed project will not affect lynx populations.

***Determination of effect***
The Corps has determined that the proposed project will have **no effect** on the lynx. This determination is based on the fact that no known lynx are associated with the proposed project site or action area and the habitat is not conducive habitat for lynx.

## 7.0 INTERRELATED AND INTERDEPENDENT ACTIONS

The interrelated or interdependent actions that are associated with the project described in Section 3 are similar bank protection work in 2004 at 10-BR-20, and at Riley Creek Campground in 2000. Other sites around the Pend Oreille Wildlife Management Area that are within the fluctuation zone of the reservoir are being considered for similar bank stabilization due to the importance of preserving habitat and protecting historical and cultural resources.

## 8.0 CUMULATIVE AND SECONDARY EFFECTS

The Corps knows of no other future state, tribal, local or private actions that are reasonably certain to occur in the action area considered in this evaluation. Future Corps actions are not considered here because they are subject to separate Section 7 consultations.

## 9.0 REFERENCES


Bangs, E.E. and S.H. Fritts. 1993. Reintroduction of gray wolves to Yellowstone National Park and Central Idaho. Endangered Species Technical Bulletin 18(3).

Barbour, M.G., J.H. Burk and W.D. Pitts. 1980. Terrestrial Plant Ecology. Benjamin/Cummins Publishing, Co. Menlo Park, CA.

Brand, C.J., L.B. Keith and C.A. Fischer. 1976. Lynx responses to changing snowshoe hare densities in central Alberta. Journal of Wildlife Management 40:416-428

Brengle, C. 2005. Ranger, US Army Corps of Engineers Albeni Dam Natural Resources Manager. Personal Communication.

Fertig, W., R. Black and P. Wolken. 2005. Rangewide status review of Ute ladies' tresses (*Spiranthes diluvialis*). Prepared for US Fish and Wildlife Service and Central Utah Water Conservancy District.

Fraley, J.J. and B.B. Shepard. 1989. Life history, ecology and population status of migratory bull trout (*Salvelinus confluentus*) in the Flathead Lake and River system, Montana. Northwest Science 63(4):133-143

Goetz, F. 1994. Distribution and juvenile ecology of bull trout (*Salvelinus confluentus*) literature review. Willamette National Forest. Eugene, Oregon.

Idaho Department of Fish and Game. 2004. Idaho Conservation Data Center (ICDC) GIS Data for Bald Eagle. http://www.state.id.us/fishgame/info/cdc/cdc.htm Accessed: March 2005

Idaho Department of Fish and Game. 2006. Pend Oreille Wildlife Management Area: Wildlife. http://fishandgame.idaho.gov/cms/wildlife/wma/pendoreille/wild.cfm Accessed: July 2006

Koehler, G.M. and J.D. Brittel. 1990. Managing spruce-fir habitat for lynx and snowshoe hares. Journal of Forestry 88:10-14

Koehler, G.M., M.G. Hormocker and H.S. Hash. 1979. Lynx movements and habitat use in Montana. Canadian Field Naturalist 93(441-442)

McChord, C.M. and J.E. Cardoza. 1982. Bobcat and lynx. *in* Wild Mammals of North America: Biology, Management, and Economics. J.A. Chapman and G.A. Feldhamer, editors. Johns Hopkins University Press, Baltimore, MD

Nellis, C.H., S.P. Wetmore and L.B. Keith. 1972. Lynx-prey interactions in central Alberta. Jourrnal of Wildlife Management 36:320-329

Pratt, K.L. and J.E. Houston. 1993. Status of Bull Trout (*Salvelinus confluentus*) in Lake Pend Oreille and the Lower Clark Fork River. Prepared for Washington Water Power Company. Spokane, WA.

Quinn, N.W.S. and G. Parker. 1987. Lynx. *in* Wild Furbearer Management and Conservation in North America. M. Novak, J.A. Barber, M.E. Obbard and B. Malloch, editors. Ontario Trappers Association, Toronto, Ontario, Canada

Rich Jr., C.F., T.E. McMahon, B.E. Rieman and W.L. Thompson. 2003. Local-habitat, watershed, and biotic features associated with bull trout occurrence in Montana streams. Transactions of the American Fisheries Society 132:1053-1064

Rieman, B.E. and J.D. McIntyre. 1993. Demographic and Habitat Requirements for Conservation of Bull Trout. USDA Forest Service, Intermountain Research Station. General Technical Report INT-302.

Rieman, B.E. and J.D. McIntyre. 1995. Occurrence of bull trout in naturally fragmented habitat patches of varied size. Transactions of the American Fisheries Society 124(3):285-296

Rust, H.J. 1946. Mammals of Northern Idaho. Journal of Mammalogy 27(4):308-327

Sheviak, C.J. 1984. *Spiranthes diluvialis* (Orchidaceae), a new species from the western United States. Brittonia 36(1):8-14

Sipes, S.D. and V.J. Tepedino. 1995. Reproductive Biology of the Rare Orchid, Spiranthes diluvialis: Breeding System, Pollination, and Implications for Conservation. Conservation Biology 9(4):929-938

Steenhof, K. 1978. Management of Wintering Bald Eagles. US Fish and Wildlife Service. Biological Report FWS/OBS-78-79.

Terra-Burns, M. 2005. Idaho Fish & Game Environmental Biologist, Panhandle Region. Personal Communication.

US Army Corps of Engineers. 1981. Albeni Falls Project Master Plan, Pend Oreille River, Idaho. Memorandum 25. Seattle, WA

US Army Corps of Engineers. 2005. Draft investigations of migratory bull trout (*Salvelinus confluentus*) in relation to fish passage at Albeni Falls Dam. Seattle, WA

Seattle District, US Army Corps of Engineers. 2006. Upper Columbia Alternative Flood Control and Fish Operations Final Environmental Impact Statement. Seattle, WA

US Fish and Wildlife Service. 1998. Proposed Rule to List the Contiguous US Population of the Canadian Lynx. US Department of Interior.

US Fish and Wildlife Service. 2005. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Bull Trout; Final Rule. September 26, 2005 Federal Register. 50(17):56211-56311

Zimen, E. 1981. The Wolf: A Species in Danger. Delacorte Press New York.

**Appendix A: Aerial Photographs with Layout of Construction Features**

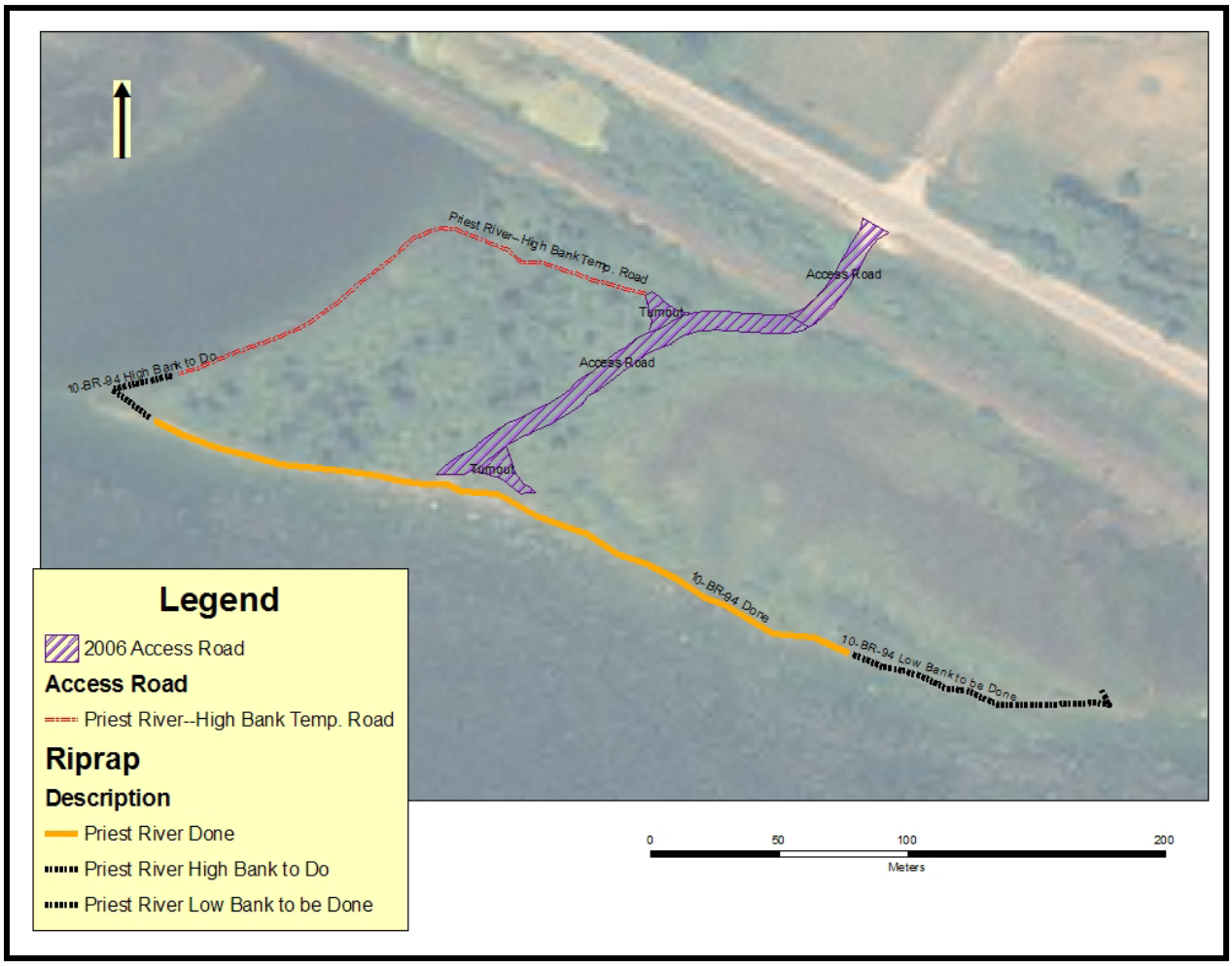


**Figure A-1. Priest River Wildlife Management Area (10-BR-94) – Erosion Control Project Area and Layout of Construction Features**


**Figure A-2. Carr Creek Wildlife Management Area (10-BR-111) – Erosion Control Project Area and Layout of Construction Features**

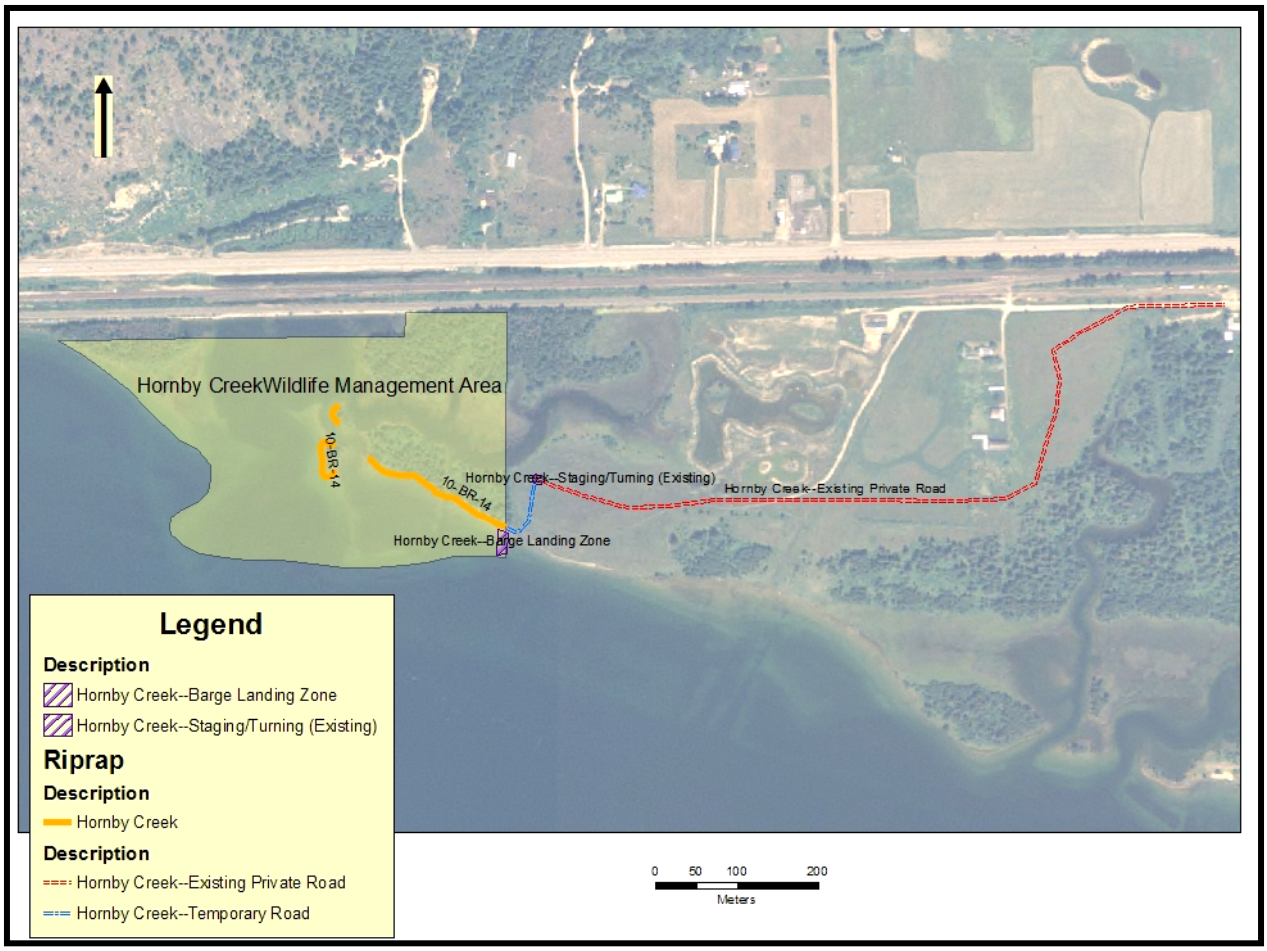


**Figure A-3. Hornby Creek Wildlife Management Area (10-BR-14) – Erosion Control Project Area and Layout of Construction Features**

**Appendix B: Project Plans and Drawings**

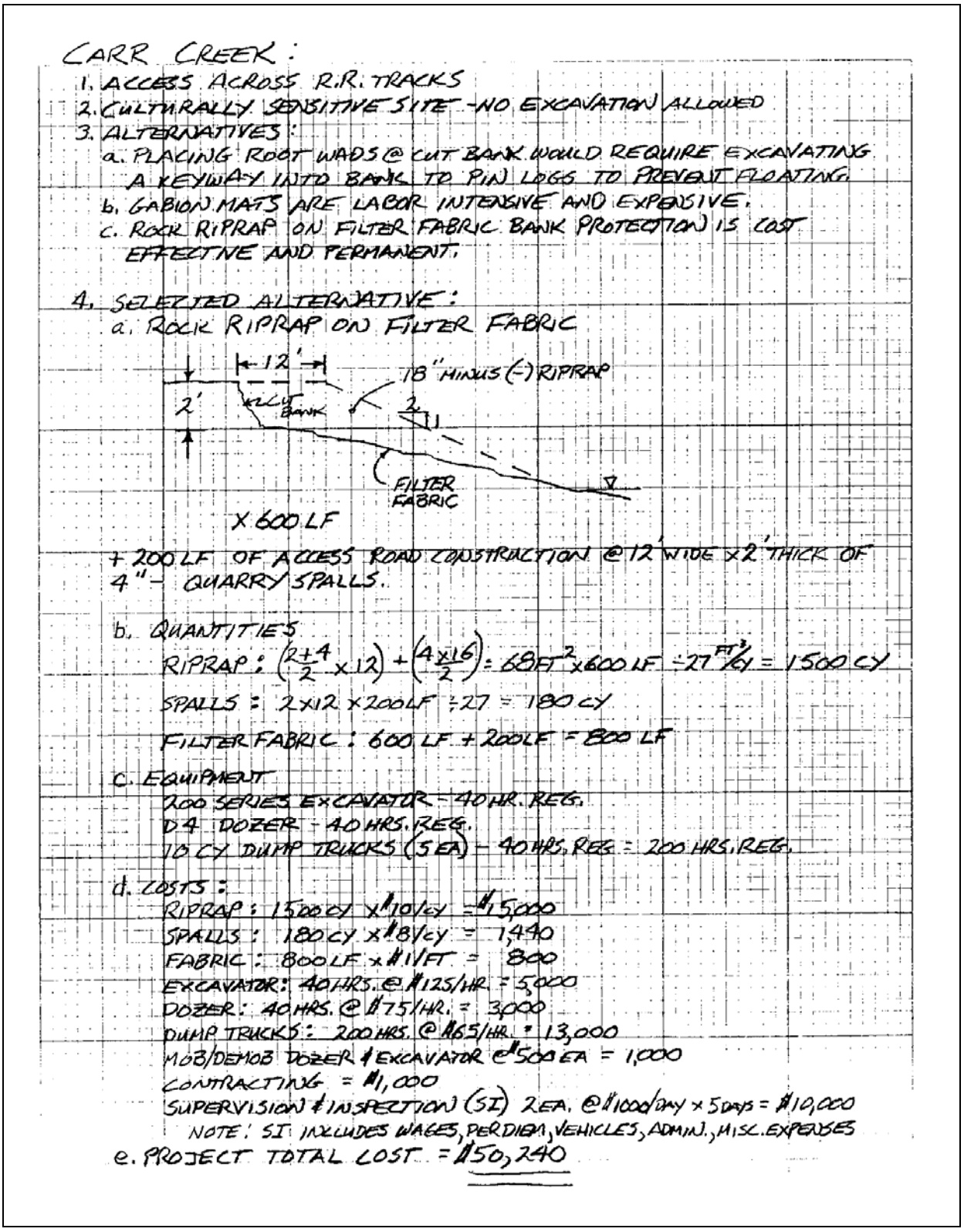


**Figure B-1. Carr Creek project plan and design details.**

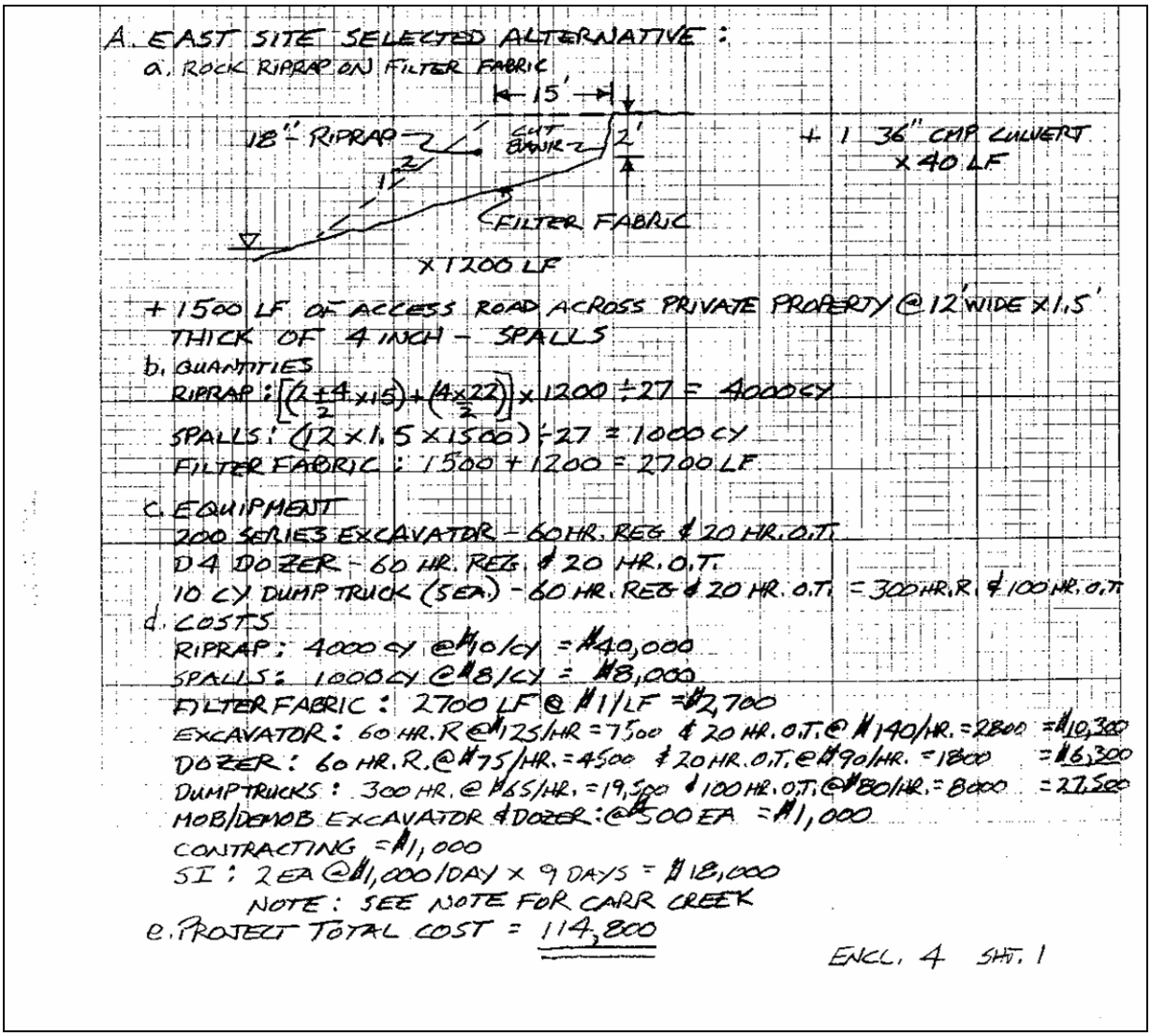


**Figure B-2. Hornby Creek project plan and design details.**

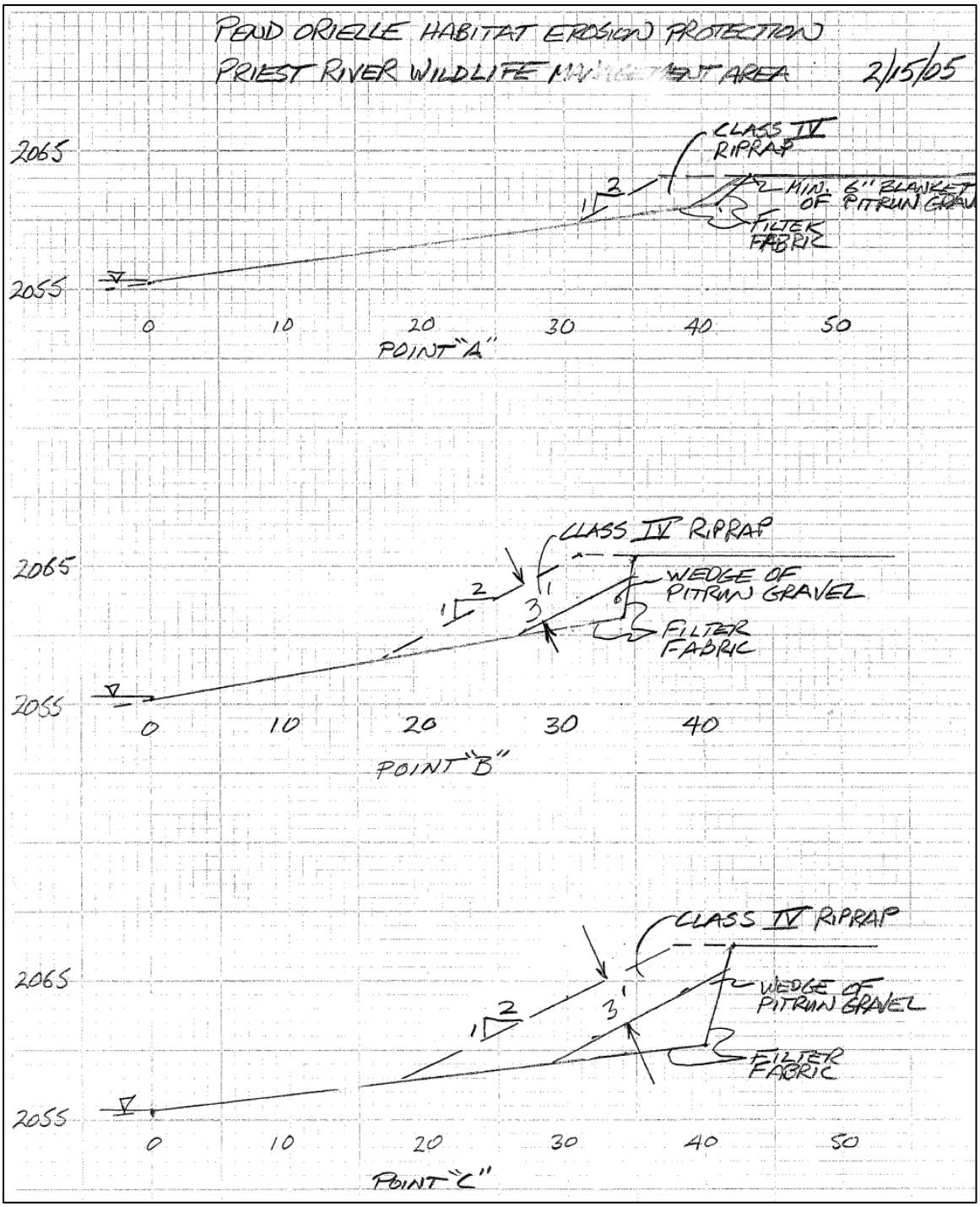


**Figure B-3. Priest River project plan and design details, bank profile from east to west.**

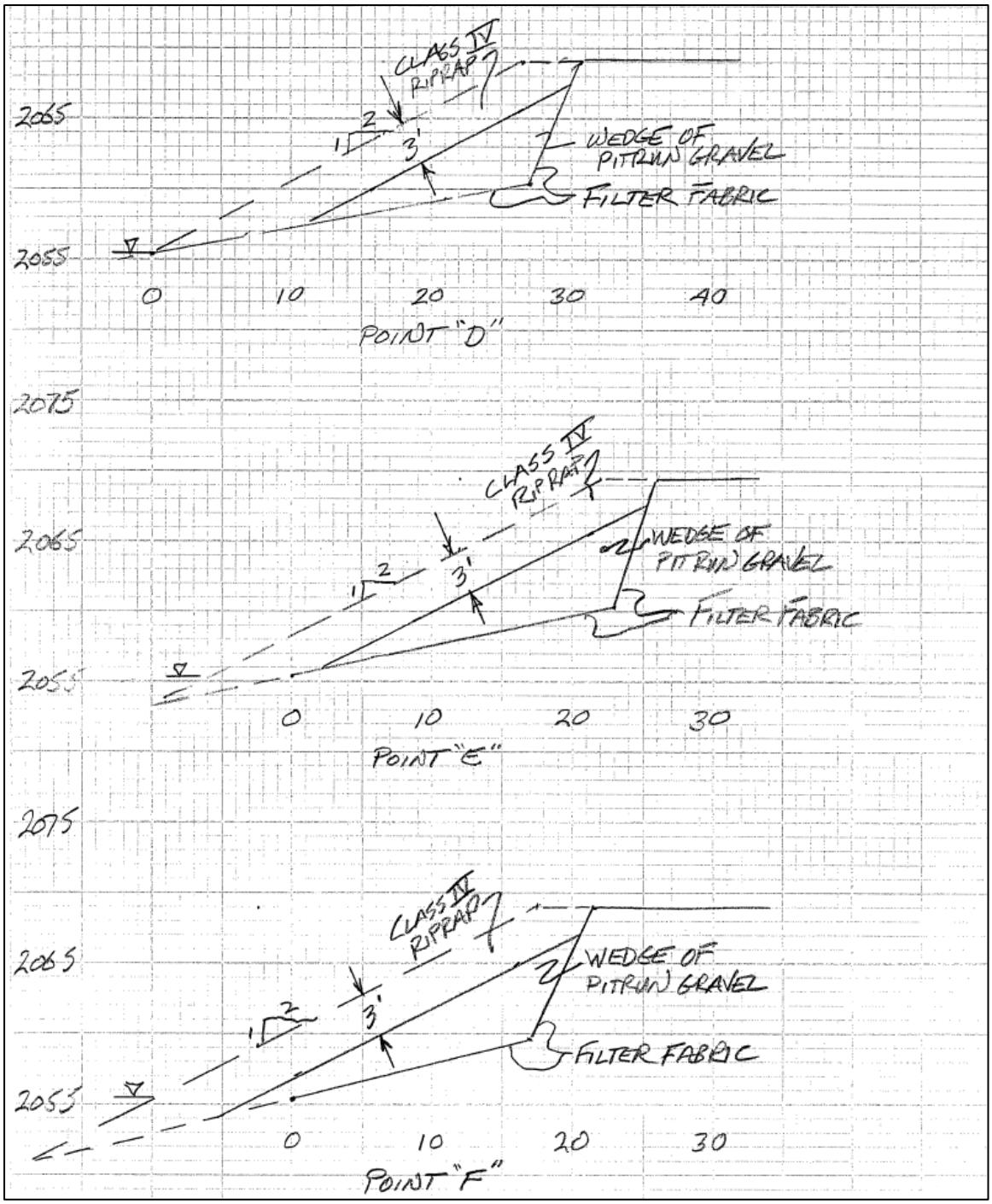


**Figure B-4. Priest River project plan and design details, bank profile from east to west.**

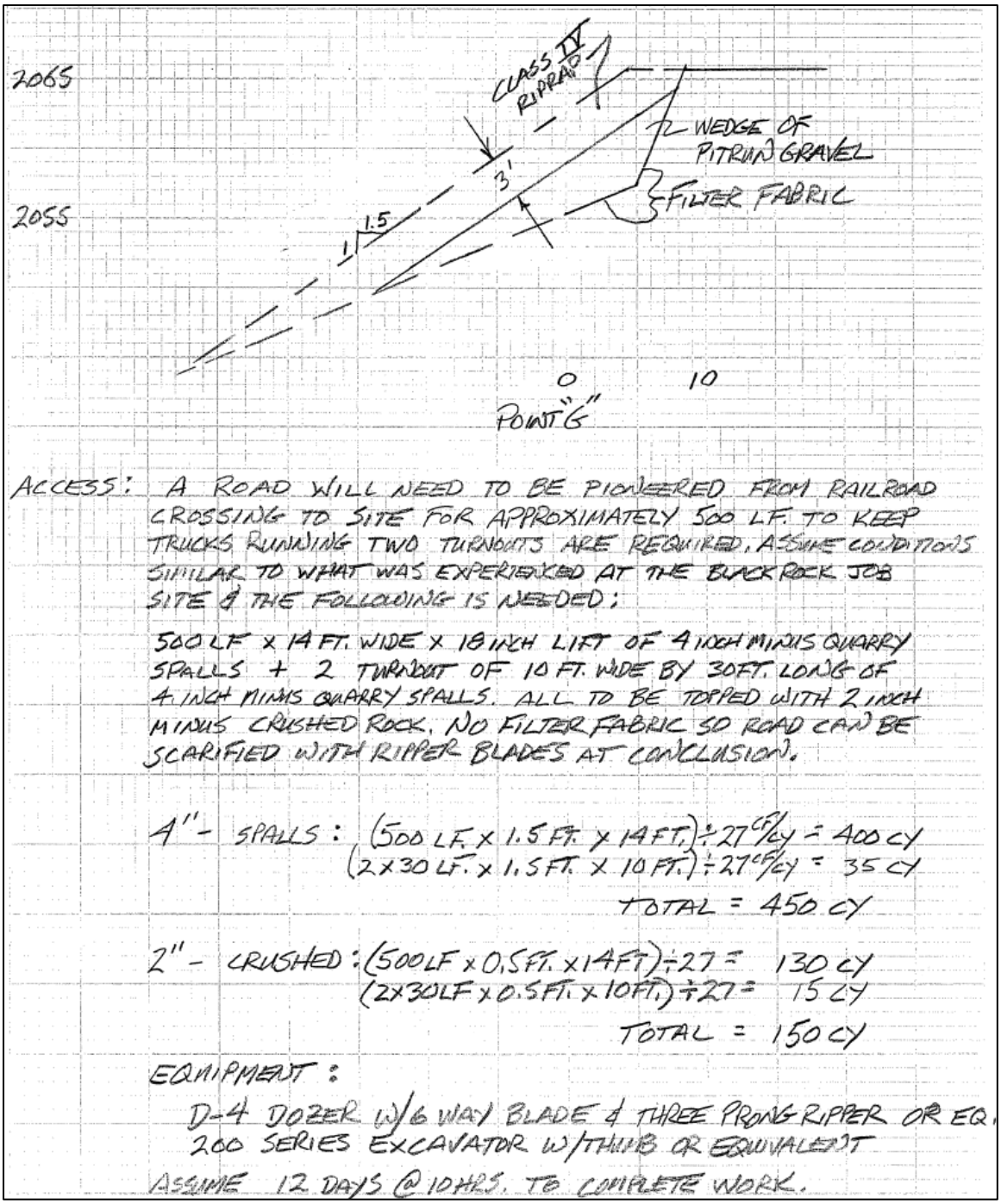


**Figure B-5. Priest River project plan and design details, bank profile from east to west.**